CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5**					R-1 ITEM NOMENCLATURE 0604245N USMC H-1 Upgrades			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**232.229**	**90.965**	**90.389**	**10.907**	**7.723**	**3.525**	**3.525**
H2279 USMC H-1 Upgrades		**232.229**	**90.965**	**90.389**	**10.907**	**7.723**	**3.525**	**3.525**

Quantity of (5) RDT&E Engineering and Manufacturing Development (EMD) test articles were placed on contract prior to FY98 and remanufacture commenced in FY99. One aircraft will be used for live fire test and evaluation.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft that remanufacture AH-1W/UH-1N's into AH-1Z/UH-1Y's include: a new 4-bladed, composite rotor system with semi-automatic bladefold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This remanufacture will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, and weapon systems management in nearly identical crew stations, which significantly reduces training requirements. This remanufacture maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades				PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**232.229**	**90.965**	**90.389**	**10.907**	**7.723**	**3.525**	**3.525**
RDT&E Articles Qty								

Quantity of (5) RDT&E Engineering and Manufacturing Development (EMD) test articles were placed on contract prior to FY98 and remanufacture commenced in FY99. One aircraft will be used for live fire test and evaluation.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft that remanufacture AH-1W/UH-1N's into AH-1Z/UH-1Y's include: a new 4-bladed, composite rotor system with semi-automatic bladefold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This remanufacture will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, and weapon systems management in nearly identical crew stations, which significantly reduces training requirements. This remanufacture maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604245N USMC H-1 Upgrades	H2279 USMC H-1 Upgrades

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Technical design, and development	212.568	68.197	60.472	

Conduct pre-flight ground test and first flight of UH-1Y. Continue tooling validation and assembly of remaining EMD aircraft including structural test. Conduct envelope expansion and complete electrical demonstration. Continue development of integrated software.

	FY 03	FY 04	FY 05	
Program developmental testing	12.151	13.048	13.534	

Program developmental testing includes: live fire test & evaluation, non-firing loads and vibrations, IAS validation and weapons check, structural demonstration, Operational Test Readiness Review (OTRR), firing loads and vibrations, sea trials, IAS validation, weapons check, weapons system accuracy, and EMI testing.

	FY 03	FY 04	FY 05	
Training and Logistics Support	7.510	3.320	4.056	

Perform level of repair analysis, logistics support analysis, reliability centered maintenance analysis, and integrated mechancial diagnostics.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604245N USMC H-1 Upgrades	H2279 USMC H-1 Upgrades

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Software Support	0.000	2.800	5.337	

Conduct Software development efforts to support development testing and address operational testing results.

	FY 03	FY 04	FY 05	
Component Fatigue Testing	0.000	3.600	6.990	

Conduct component level fatigue testing to establish fatigue lives for development aircraft.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604245N USMC H-1 Upgrades	H2279 USMC H-1 Upgrades

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	236.039	90.589	61.174
Current BES/President's Budget	232.229	90.965	90.389
Total Adjustments	-3.810	0.376	29.215
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-1.024	
Congressional rescissions			
SBIR/STTR Transfer	-5.272		
Economic Assumptions			-0.161
Reprogrammings	1.462		
Other Navy/OSD Adjustments			29.376
Congressional increases		1.400	
Subtotal	-3.810	0.376	29.215

Schedule:

Schedule change due to the integration of the HMS/D Thales Helmet, which replaced the previous helmet in the spring of FY 2003.

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 93

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades	PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	Prior	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
P-1 LI #7, UH-1Y/AH-1Z (4BN/4BW)	5.987			308.492	241.792	337.685	431.934	467.211	454.563	3,206.825	5,454.489
Quantity				9	9	12	19	21	21	189	280

E. ACQUISITION STRATEGY:

The USMC H-1 Upgrades is an ACAT 1D program which encompasses Engineering and Manufacturing Development of new end-items prior to a production approval decision. The prime contract is a sole source to Bell Helicopter Textron, Inc.

R-1 SHOPPING LIST - Item No. 93

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**			PROGRAM ELEMENT 0604245N USMC H-1 Upgrades			PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY04 Cost	FY04 Award Date	FY 05 Cost	FY05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS CPFF	Bell Helicopter, Ft. Worth, TX	636.758	196.335	10/02	60.180	10/03	54.054	10/04	0.000	947.327	954.279
Anciliary Hdw Development											0.000	
Training Development	WR	Various	5.132	0.610	11/02	0.470	11/03	0.000		0.000	6.212	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WR	Various	48.305	13.155	Various	4.562	Various	3.770	Various	0.000	69.792	
Licenses											0.000	
Tooling											0.000	
GFE	Various	Various	15.597	2.468	10/02	2.985	10/03	2.648	10/04	0.000	23.698	
Award Fees*	WR	Bell Helicopter, Ft. Worth, TX	12.668							0.000	12.668	12.668
Subtotal Product Development			718.460	212.568		68.197		60.472		0.000	1,059.697	
*Remarks: Effective 1 May 00, cost plus incentive fee (CPIF) applies. Original contract was was a SS CPAF contract. Total award fee pool $47,496,152, and to date $12,668,250 has been awarded. Period #1 was 90%, period #2 87%, period #3 90%, period #4 77%, period #5 76%, and period #6 was 0%. Award fee activity was terminated on 30 April 2000.												
Development Support	Various	Various				3.600	11/03	6.990	11/04	10.996	21.586	
Software Dev. Electronics											0.000	
Software Dev. Weapons Integration	Various	Various				2.800	11/03	5.337	11/04	14.684	22.821	
Integrated Logistics Support	Various	Various	16.198	5.760	11/02	1.660	11/03	2.496	11/04	0.000	26.114	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analysis											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			16.198	5.760		8.060		14.823		25.680	70.521	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604245N USMC H-1 Upgrades				PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	NAWC Patuxent River	12.495	11.545	11/02	11.248	11/03	6.574	11/04	0.000	41.862	
Operational Test & Evaluation	Various	NAWC Patuxent River		0.606	11/02	1.800	11/03	5.000	11/04	0.000	7.406	
Live Fire Test & Evaluation	Various	NAWC Patuxent River						1.960			1.960	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			12.495	12.151		13.048		13.534		0.000	51.228	
Remarks:												
Contractor Engineering Support	C FFP	CCI, Inc.	3.224	0.795	11/02	0.745	11/03	0.745	11/04	0.000	5.509	5.509
Government Engineering Support											0.000	
Program Management Support	C FFP	CCI, Inc.	4.427	0.695	11/02	0.645	11/03	0.545	11/04	0.000	6.312	6.312
Travel	WR	Various	1.587	0.260	11/02	0.270	11/03	0.270	11/04	0.000	2.387	
Transportation											0.000	
										0.000		
Subtotal Management			9.238	1.750		1.660		1.560		0.000	14.208	
Remarks:												
Total Cost			756.391	232.229		90.965		90.389		25.680	1,195.654	
Remarks:												

R-1 SHOPPING LIST - Item No. 93

CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades	PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades	

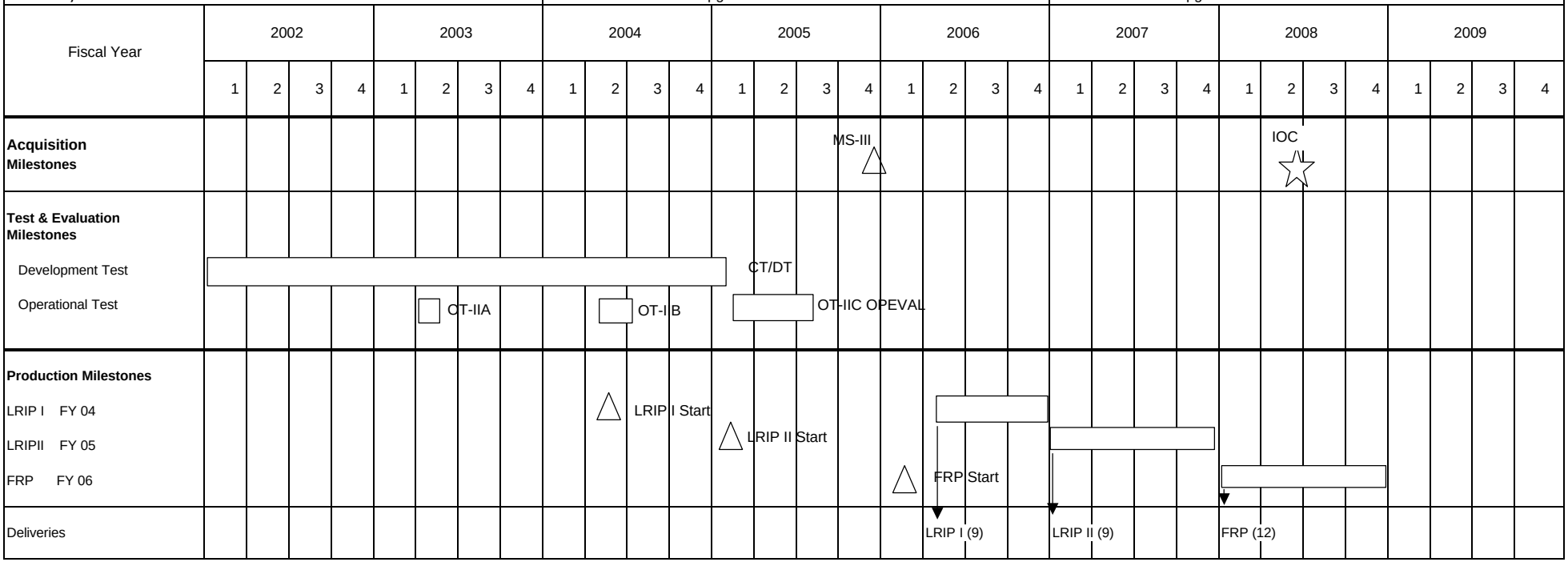

Exhibit R-4a, Schedule Detail						DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT 0604245N USMC H-1 Upgrades				PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Developmental Testing (DT-II)	1Q-4Q	1Q-4Q	1Q-4Q	1Q				
Operational Testing (OT-IIA)		2Q						
Start Low-Rate Initial Production I (LRIP I)			2Q					
Low-Rate Initial Production I Delivery					2Q-4Q			
Operational Testing (OT-IIB)			2Q - 3Q					
Start Low-Rate Initial Production II				1Q				
Low-Rate Initial Production II Delivery						1Q-4Q		
Operational Evaluation (OT-IIC) (OPEVAL)				1Q-2Q				
Full Rate Production (FRP) Decision				4Q				
Full Rate Production Start					1Q			
Full Rate Production (FRP) Delivery							1Q-4Q	
IOC							2Q	